THE FOLLOWING REPORTS OF OBSERVATORIES WERE RECEIVED TOO LATE FOR INSERTION IN THE ANNUAL REPORT OF THE COUNCIL :—

Melbourne Observatory.

Meridian Observations made with the 8-inch Transit Circle.

Observations in	R.A.	N.P.D.
Azimuth stars	299	134
Clock ,,	1676	...
List ,,	1160	1173
Total ...	3135	1307

The list stars were selected from the plates of the *Astrophotographic Catalogue* to be used for the reduction of these plates. The total number of this class of stars observed at Melbourne at least three times, up to December 31 last, was 3,534.

The separate results and annual catalogue for 1899 have been prepared, and the reductions of all meridian observations for 1900 are nearly completed.

The General Catalogue for 1890, which contains 3,100 stars, and includes all the observations made with the 8-inch Transit Circle since its erection in 1884 to the year 1893 inclusive, has also been completed, and is now undergoing a general revision and an independent re-computation of the precessions.

Astrophotographic Operations.—

Chart plates with triple exposures of 30^m each ...	45
Chart plates with single exposures of 60^m ...	56
Catalogue plates (Duplicate Series)	46
Test plates on South Polar region	31
Test plates on Oxford typical regions	10
Test plates for trials, centre, &c.	29
Plates for investigating magnitudes	9
Total number of plates obtained	226

Six chart plates with triple exposure, 7 chart plates with single exposure, and 2 catalogue plates have been rejected as defective.

The series of chart plates with single exposure of 60^m, covering the Melbourne zones of even degrees of declination, is practically completed, only some 12 rejected plates remaining to be obtained again. As the last Paris Conference did not come to

any definite conclusion as to the process and form to be adopted for the publication of the chart by the co-operating observatories, it is intended to initiate experiments to ascertain whether it will be possible here in Melbourne (both in regard to cost and excellence of work) to reproduce our chart plates for publication, taking for our model and standard the beautiful Paris charts.

Measurement of Plates.—See joint report.

Equatorials.—No systematic work has been done with the Great Telescope and other equatorials. These instruments have been used only occasionally for examination of comets and planets, and for visitors.

Photoheliograph.—Sixteen pictures of the Sun were obtained during the year on special occasions.

Terrestrial Magnetism.—Photographic registration of the variation of magnetic elements and absolute measurements have been carried on as in former years.

The measurement and reduction of magnetic curves of past years has been continued by four young computers.

7,911 day curves have been measured and reduced during the year 1900, including the records of 1881, 1884, 1885, 1886, 1887, 1888, 1889.

The total number of curves now measured is 12,206, which is about two-fifths of the whole amount required to bring the arrears up to the end of 1897.

Cloud Photography.—Sixty-five pairs of simultaneous pictures were taken for determination of cloud height and velocity. The reduction of cloud observations made for the International Meteorological Committee during the year 1897 and the measures of cloud photographs have been carried on by two young computers.

The reductions are well advanced.

Meteorological and Miscellaneous Work.—Amongst the general routine duties which have been carried on as in former years for public requirements are the following :—

The Time Service.—The meteorological service, which now includes 672 Victorian stations. The testing of surveying, nautical, and meteorological instruments, and rating of chronometers for the shipping, &c.

The observation and registration of tides.

Prolonged sickness prevailed amongst some of the members of the permanent staff in the course of the past year, and one of the temporary assistants died last December.

Measurement of the Sydney and Melbourne Plates of the Astrophotographic Catalogue. Joint Report for Sydney and Melbourne.

The measuring instrument made by Repsold & Söhne on the plan of Sir David Gill, which, as was announced in the joint report of last year, reached the Melbourne Observatory in January 1900, has been constantly employed in the systematic measurement of the catalogue plates since last March.

The verdict on this instrument, as far back as last April, was that "In point of construction and workmanship it fully bears out the reputation of the makers, and experience so far gained in Melbourne in working with it confirms the reality of all the advantages and capabilities ascribed to it by Dr. Gill."

All the adjustments were made with very little trouble within the degree of accuracy and in the manner described by Sir David Gill in *Monthly Notices*, vol. xlix. page 61 *et seq.*, and remained very constant.

This instrument is far easier, far less fatiguing, and far more satisfactory to work with than any other instrument previously used here for the measurement of plates. The rate of measuring has increased considerably with experience. At present about 170 stars can be measured in one hour, and, on an average, a plate containing 400 stars is measured in the direct and reverse position by two observers, each recording for the other in alternate periods of one hour, in one working day (about $6\frac{1}{2}$ hours), including the revision of measures differing by $0''\cdot6$ or more, in the reverse and direct position, which discrepancy measures amount, at most, to 3 per cent.

The rate of measuring with the Melbourne micrometers is only one-third of that obtainable with the Repsold instrument.

Owing to this fact, and to unavoidable delay in pushing forward the measuring machine which is being made at the Sydney Observatory, we ordered last May another instrument from the Repsolds similar to the first, which we hope will reach Melbourne in a few months.

Thirty-six Sydney plates and fifty-one Melbourne plates have been completely measured, containing 49,697 stars.

The average number of stars on a single plate is, approximately, 1,000 for Sydney plates, and under 300 for the Melbourne plates.

As soon as the measuring bureau, which consists of six young ladies, is fully equipped with three quick-measuring instruments it is estimated, from the present rate at which the work is proceeding, that the work of the bureau for a year consisting of about 250 full working days will be probably represented by the measures of coordinates in direct and reverse position of some 300,000 stars.